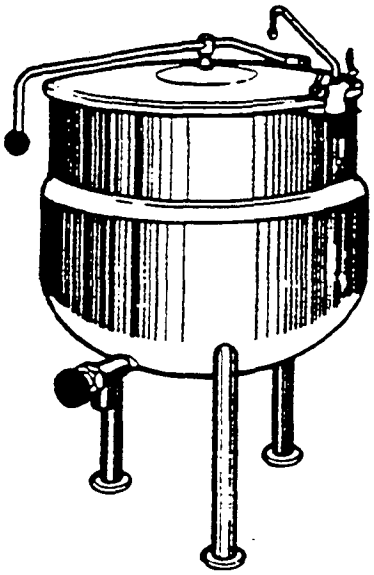
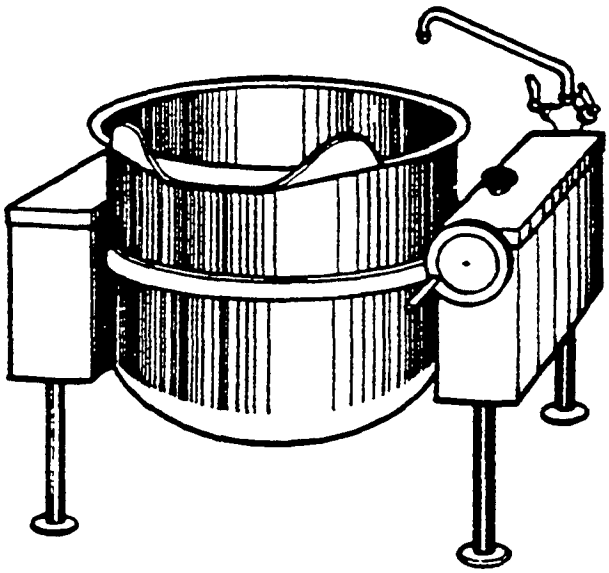
CLEVELAND

INSTALLATION, OPERATION AND REPAIR MANUAL

DIRECT STEAM KETTLES

MODEL **KDL - T**
KDL
KDP





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INSTALLATION. OPERATION -AND MAINTENANCE INSTRUCTIONS
FOR

DIRECT STEAM KETTLES

TILTING, STATIONARY, AND PEDESTAL MODELS

KDL-25-T	KDL-25	KDP-25
KDL-30-T	KDL-30	KDP-30
KDL-40-T	KDL-40	KDP-40
KDL-60-T	KDL-60	KDP-60

PRODUCT INFORMATION

MODEL STYLE _____

MODEL NO. _____ SERIAL NO. _____

INSTALLATION DATE_____ INSTALLER _____

RETAIN THIS MANUAL FOR YOUR REFERENCE

INSTALLATION INSTRUCTIONS FOR

DIRECT STEAM KETTLES

WARNING:Installauon of kettle must be accomplished by qualified installation personnel, working to all applicable local and national codes. Improper installation of product could cause injury **or** damage.

This equipment is built to comply with applicable standards for manufacturers. Included among those approval agencies are: UL, NSF, ASME/Ntl.Bd., CSA, ETL, and others. Many local codes exist, and it is the responsibility of the owner and installer to comply with these codes.

INSPECTION

Before unpacking visually inspect the unit for evidence of damage during shipping. If damage is noticed, do not unpack the unit, follow shipping damage instructions.

SHIPPING DAMAGE INSTRUCTIONS

If shipping damage to the unit is discovered or suspected, observe the following guidelines in preparing a shipping damage claim.

1. Write down a description of the damage or the reason for suspecting damage as soon as it is discovered. This will help in filling out the claim forms later.

2. As soon as damage is discovered or suspected, notify the carrier that delivered the shipment.

3. Arrange for the carrier's representative to examine damage.

4. Fill out all carrier claims forms and have the examining carrier sign and date each form.

INSTALLATION

The first installation step is to refer to the specification sheet for clearance requirements, in order to determine the location of the kettle. Next, carefully cut open the shipping carton for easy removal of the kettle.

KDL SERIES (Tri-Leg Models)

Position the kettle in its permanent location, and level the kettle by turning the adjustable flanged feet. Once positioned and levelled, permanently secure the kettle's flanged feet to the floor using 5/16" lag bolts and floor anchors (to be supplied by the installer). There are three bolts required to secure each of the flanged feet.

KDP SERIES (Pedestal Models)

1. Position the kettle in its permanent location, and mark the floor around the circumference of the base collar or the base plate. Locate the centre of this circle and mark the floor at this centre point. This is the point at which the kettle's base plate will be secured to the floor.

2- Lay kettle on its side (on a cushioned surface to prevent scratching), and slide the base collar up the pedestal, exposing the plate for removal.

3. Remove the four cap screws securing the base plate and slide it off the kettle.

4. Prepare the floor location, for mounting the kettle, by installing a 3/4"(19mm) stud, cast into the floor, at the base plate's centre point. Note: a 3/4"(19mm) lag bolt and floor anchor may be substituted for a cast-in stud. The anchor is installed in the floor, and the lag bolt is threaded down through the base plate, into the anchor, after completion of step 6.

5. Thread the four 3/8"(10mm) levelling bolts into plate from the top, and insert the plate over stud.

6. Adjust bolts until the plate is level.

7. Install a nut on the 3/4" (19mm) bolt (or insert a lag bolt if the alternate fastener method is used) and secure base plate to the floor.

8. Check for level "set" of the kettle by placing the kettle on the base plate with the screw holes aligned and applying a carpenter's level at the kettle rim. **If** the kettle is level, it may be fastened in place with the four cap screws. If the kettle is not level, the kettle must be removed from the base, the plate loosened, and the levelling bolts re-adjusted until a level installation is attained.

9. Slide the base collar down to the floor, and draw a line around the circumference of the pedestal at the top of the collar, using the top of the collar as a guide. Slide the collar back up the pedestal.

10. Apply a bead of silicone sealer to the circumference of the pedestal, at the line, and also to the bottom rim of the collar. Slide the collar down the pedestal and press it tightly to the floor. The silicone sealer will create a seal where the collar meets the pedestal, and where the collar meets the floor.

SERVICE CONNECTIONS

Install service connections as required. Locations and other data are shown on the specification sheet.

STEAM

All steam plumbing to and from the kettle and steam boiler should be thoroughly cleaned and inspected for din and debris before the final connections to the kettle are made.
Refer to the specification sheet for the minimum allowable size of the branch steam supply plumbing (from the steam "main" plumbing or a nearby boiler). Generally, kettles require a minimum of 3/4" i.p.s. pipe. Kettles require 100 psi steam pressure. Check the rating plate for the maximum steam pressure that your kettle is rated for. If the steam supply pressure exceeds the rated pressure, a pressure reducing valve is required. The steam inlet is at the right side of the kettle, as seen from the front.

CONDENSATE

The steam condensate trap must be plumbed to an open, free-venting drain -or a condensate return system, using minimum 1/2" NPT plumbing. The condensate line is limited to a maximum rise of 10 feet in order for the steam pressure to adequately force the condensate through the plumbing. Any higher rise requires a pump.

If the steam boiler to which this kettle is installed has a condensate return, a 1/2" (13mm) steam strainer, a 1/2" (13mm) steam trap, and a 1/2" (13 mm) check valve must be installed on the output (condensate) side of the kettle.

FAUCET (OPTIONAL)

The water faucet, with swing spout, requires 1/2 inch O.D. copper tube plumbing for hot/or cold water supplies to the faucet (if so equipped).

ELECTRICAL

Power pour kettles require a permanent 115 volt electrical connection. Refer to the specification sheet for precise location. A kettle that is connected to electricity must be grounded by the installer, and installed in accordance with local codes and/or the National Electrical Code ANSI/NFPA No. 70-1990. Installation in Canada must be in accordance with the Canadian Electric Code CSA Standard C22.1.

FINAL INSTALLATION CHECK

1. If the kettle is equipped with a tangent draw-off valve, ensure that it is closed.

2. Partially fill the kettle with water.

3. Slowly turn the steam supply valve's knob counter-clockwise, to the open position.

4. Release the safety valve, ensuring that the steam escapes freely. Stay clear of steam exhaust when releasing the safety valve.

5. Observe that the water in the kettle comes to a boil.

6. **Close** the steam supply valve.

7. Drain off the water by opening the draw-off valve or tilting the kettle forward. Power pour kettles **ONLY:** To raise the kettle, press the top of the rocker switch. To lower the kettle, press the bottom of the rocker switch.

OPERATION

Ensure that there is an adequate steam supply **to** the kettle.

For optimum performance on free-standing floor model tilting kettles, open the drain petcock to drain condensate from the kettle's jacket, then close the drain petcock before applying steam to a cold kettle.

If the kettle is equipped with a tangent draw-off valve, ensure that it is closed before filling the kettle. To keep solid food particles out of the draw-off valve, place either the solid or the perforated disc (strainer) in the bottom of the kettle. Use the solid disc if the liquid is to be retained, and the perforated disc if the liquid is to be drained off.

Turn the steam control valve to the full open position by turning the knob counter-clockwise, then allow the kettle to preheat.

NOTE: When cooking egg and milk products, the kettle should NOT be preheated, as products of this nature adhere to hot cooking surfaces. These types of foods should be placed in the kettle before heating is begun.

Fill the kettle with product to the desired level.

When the product has reached the desired temperature, regulate the heat, as required, by turning the steam control valve clockwise for less steam, and therefore, a lower temperature.

When cooking is complete, close the steam control valve by turning the knob clockwise until it stops turning.

Power-pour kettles are provided with a rocker-type center-off switch for raising and lowering the kettle. To raise the kettle, press the top of the switch. To lower the kettle, press the bottom of the switch- Release the switch, allowing it to return to the center "off' position when the desired degree of tilt has been reached. Limit switches are provided that automatically stop the tilt motion at the maximum limit of movement in either direction.

To raise and lower manual tilt, floor mounted kettles, turn the handwheel counter-clockwise to lower and clockwise to raise.

For kettle/steamer combinations: If the boiler in a steamer is supplying steam to a kettle, always heat the kettle first. After the kettle contents are heated, and the boiler's steam pressure returns to normal, the steamer may be used- Pressure steamer compartments should be sequentially started, and preheated before cooking.

NOTE: As with cleaning food soil from any cookware, an important part of kettle cleaning is to prevent foods from drying on. For this reason, cleaning should be completed immediately after cooked foods are removed. Please refer to the "Care and Cleaning" instructions for detailed kettle washing procedures.

CARE AND CLEANING

Your kettle must be cleaned regularly to maintain its fast, efficient cooking performance, and to ensure its continued safe, reliable operation.

WARNING: Do not use chlorine base detergent.

1. Prepare a warm water and mild detergent solution in the kettle.

2. Remove food soil inside the kettle using a nylon brush. Do not use a metal bristle brush, as this may permanently damage the kettle's stainless steel surface.

3. Loosen food which is stuck to the kettle by allowing it to soak at a low temperature (simmer or low boil).

4. Open the draw-off valve or tilt kettle forward to drain the wash water.

If the kettle is equipped with a draw-off valve, it should be cleaned as follows:

a. Remove the drain strainer from the bottom of the kettle. Thoroughly wash and rinse the strainer, either in a sink or a dishwasher, then replace it into the kettle.

b. Disassemble the draw-off valve, first by turning valve knob counter-clockwise, then turning the large hex nut counter-clockwise, until valve stem is free of the valve body.

c. In a sink, wash and rinse the valve stem, hex nut, and knob. Wash and rinse the inside of the valve body using a nylon brush. Kettle brushes and other accessories are available from your authorized dealer.

d. Reassemble the draw-off valve by reversing the procedure for disassembly. THE VALVE'S HEX NUT SHOULD BE HAND TIGHT ONLY.

5. Rinse the kettle interior thoroughly, then drain rinse water.

6. Leave the cover and draw-off valve open when the kettle is not in use.

7. Using mild soapy water and a damp sponge, wash the exterior of the kettle, rinse,and dry. Avoid soaking the electric control panel. Always turn off equipment power before using water to wash equipment. DO NOT HOSE DOWN THE KETTLE.

NOTE: For more difficult cleaning applications, one of the following can be used: alcohol, baking soda, vinegar, or a solution of ammonia in water. Avoid the use of chloride cleansers, which may damage the kettle's stainless steel surface.

WARNING: Steel wool should never be used for cleaning the cooking chamber of the kettle. Particles of the steel wool become embedded in cooking surface and rust, and may corrode the stainless steel.

MAINTENANCE

These kettles require very little preventive maintenance, other than daily cleaning. Some kettles are equipped with handwheel tilting mechanisms, which require periodic preventive maintenance to assure continued trouble-free operation. Inspect the worm screw, tilting gears, and bearings occasionally (at least once a year) Lubricate as required using a high temperature grease.

Each kettle is equipped with a steam trap in the line from the kettle outlet to the drain, to remove the condensate that forms inside the steam jacket. A good steam trap at startup releases air and wet steam into the drain line for a few minutes, then holds the steam within the steam jacket. During cooking, the trap periodically releases accumulated condensate. If the kettle's cooking performance becomes inadequate after long use, replacement of the steam trap with a new one may restore kettle operation to peak efficiency.

DRAW-OFF VALVE MAINTENANCE

To correct a leak at the draw-off valve, the source of the leak must first be determined. Leaks from around the valve stem are corrected by simply replacing the "0" ring. Faulty seating of the valve stem disc against the valve body may cause dripping from the valve even when the valve is tightly closed. This can often be corrected by cleaning any residue from the disc and seat.

The Company supports a worldwide network of Maintenance and Repair Centers, which are regional distributors of parts and service. Contact your nearest Maintenance and Repair Center for the name of an authorized service agency in your area, or for replacement parts, or information regarding the proper maintenance and repair of your equipment. In order to preserve the various agency safety certifications (UL, A.G.A., CSA, CGA, NSF, ASME/Ntl. Bd., etc.), only factory-supplied replacement parts should be used. The use of other than factory-supplied replacement parts will void the warranty.

OPERATING CONTROLS & INDICATORS

For your better understanding and confidence, the following explanation of the control system used on this kettle is offered.

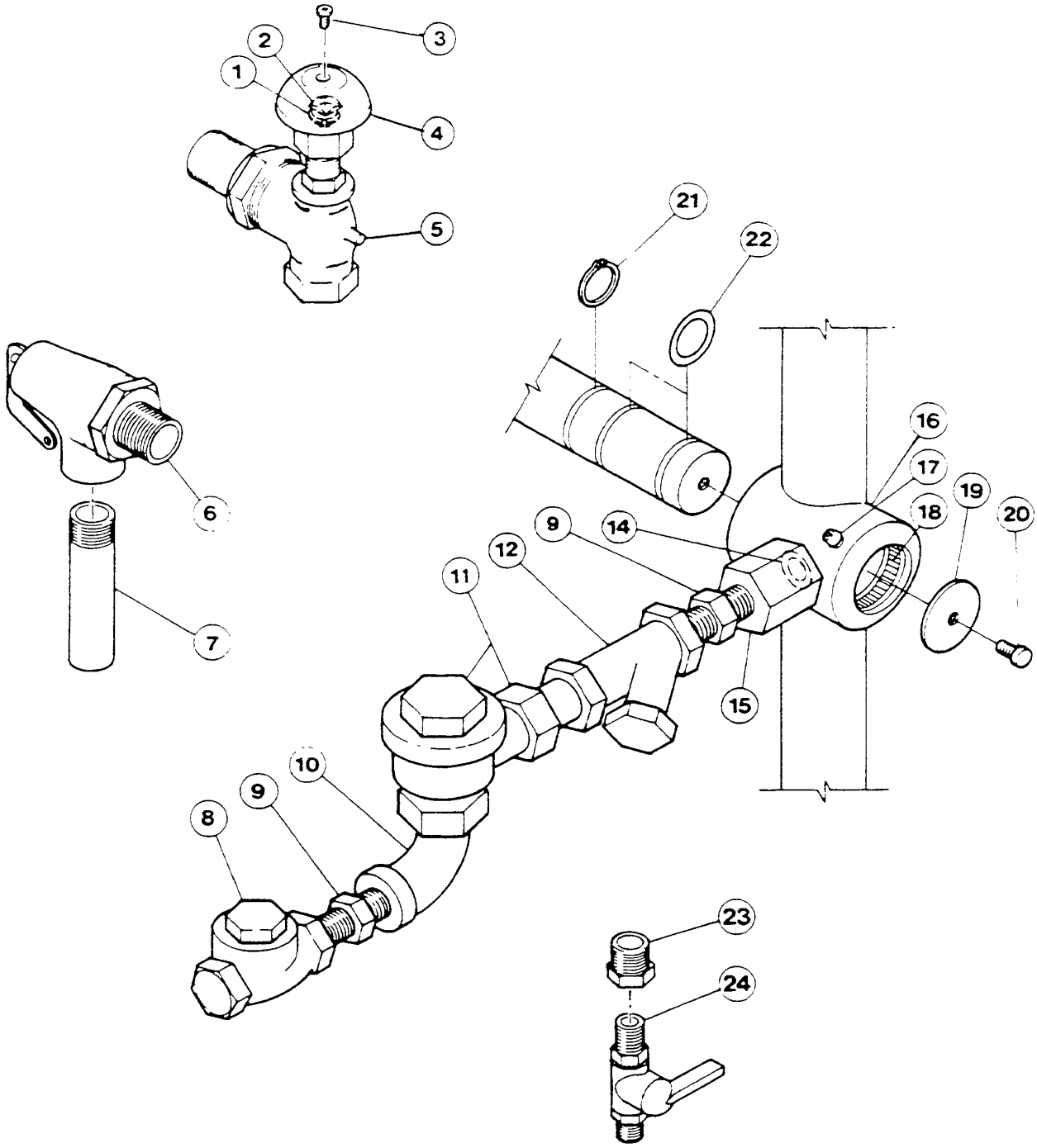
ITEM NO.	DESCRIPTION	FUNCTION
4	Steam Inlet Valve (Pg. 233-09DR)	Opens and closes the steam supply to the kettle.
15	Hand wheel (Pg. 233-09DR)	Turn to tilt kettle for pouring.
13	Pressur Relief Valve (Pg. 233-08DR)	In the unlikely event that there is an excess steam build-up in the jacket, this valve automatically opens to relieve this pressure.
16	Drain Cock (Pg. 233-08DR)	Used to drain condensate from the bottom of tilting units only.
1-7	Draw-Off Valve (Pg. 600-04TD)	This valve is used to empty the kettle of either food product or wash water. It is supplied as standard equipment on stationary models and is optional on tilting kettles.
20	Power Tilt Control Switch (Pg. 233-10DR)	This switch allows the operator to tilt the kettle up or down.

PARTS LIST - STEAM CONTROL

ITEM NO.	PART NO.	DESCRIPTION	QTY.
1.	KE51892	Retaining ring	1
2.	KE51888	Washer	1
3.	FA11501	Valve knob screw	1
4.	SE00028	Valve knob assembly (includes item 1,2,3)	1
5.	KE51259	3/4" Chrome steam inlet valve	1
6.	KE51720	3/4" Pressure relief valve 50 psi	1
7.	KE50221	Blow down tube	1
8.	KE52700	1/2" Check valve	1
9.	FA00596	Nipple 1/2" NPT x 1 1/2" long	2
10.	FI05078	90° Elbow (chrome plated)	2
11.	KE52701	1/2" Steam trap	1
12.	KE52702	1/2" Strainer	1
* 14.	FA00113	"O" Ring	1
* 15.	KE50676	Connector	1
* 16.	KE00353	Trunnion bearing, spring assist cover	1
	KE00352	Trunnion bearing, spring assist cover	
* 17.	KE51886	Grease nipple	2
* 18.	KE51711	Bearing	2
* 19.	KE50666	Spherical washer	1
* 20.	KE00349	Screw 5/16"-18	1
* 21.	FA95007	Retaining ring	1
* 22.	FA00218	"O" Ring	2
* 23.	FI00352	Reducer bushing 1/2 x 3/8	1
* 24.	KE50675	Drain cock	1

* Applicable to tilting models only

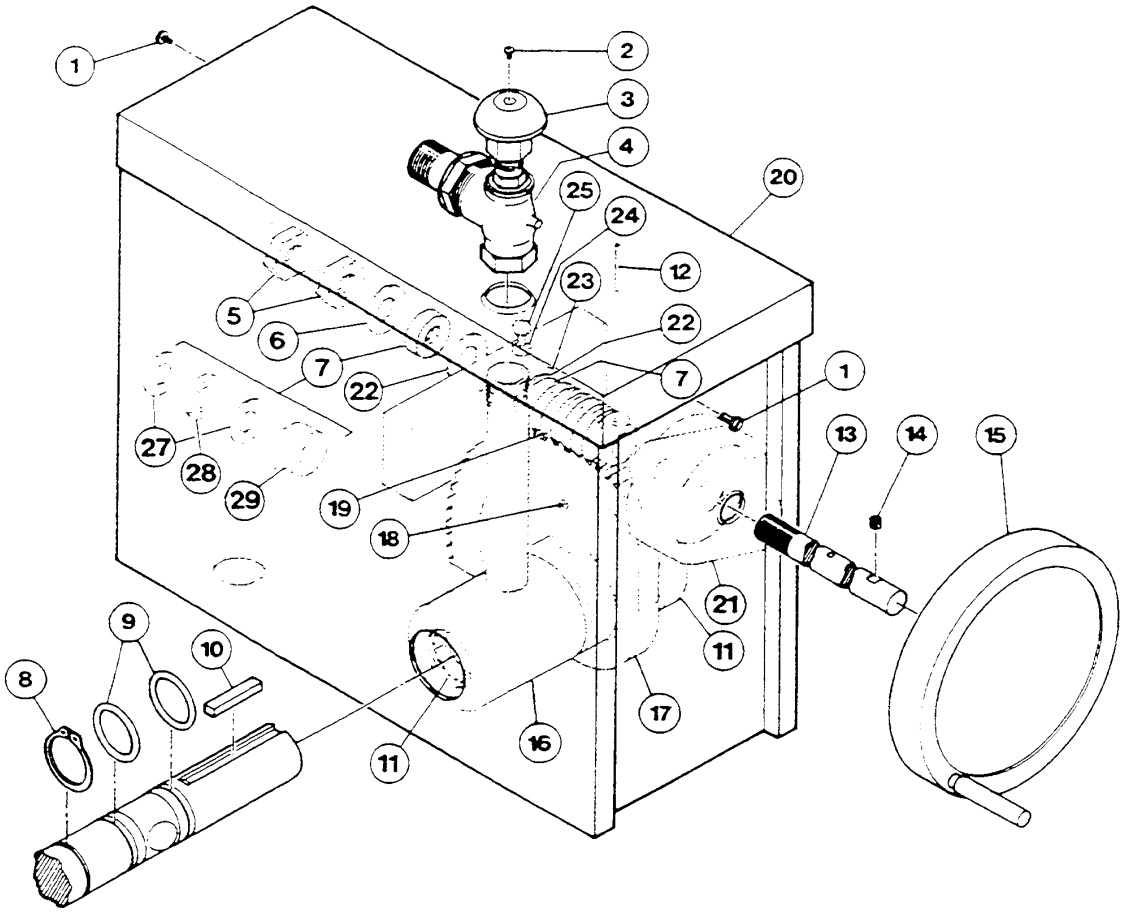
STEAM CONTROL



PARTS LIST - CONTROL HOUSING

ITEM NO.	PART NO.	DESCRIPTION	QTY.
1.	FA11134	Screw #10-24	2
2.	FA11501	Valve knob screw	1
3.	SE00028	Valve knob (Item no. 2 included)	1
4.	KE00350	3/4" Brass steam inlet valve (Item no. 2 & 3 not included)	1
5.	FA95008	Lock nut 3/4-16	2
6.	FA30088	Tilt shaft washer	1
7.	SE00036	Thrust bearing assembly (Item no. 27, 28, & 29 included)	2
8.	FA95007	Trunnion retaining ring	1
9.	FA00218	Trunnion "O" ring	2
10.	FA95012	Worm gear key	1
11.	KE51711	Trunnion bearing	1
12.	FA95005	Tension pin	1
13.	KE50375	Tilt shaft	1
14.	FA19501	Hand wheel allen screw	1
15.	KE53726	Hand wheel	1
16.	KE00164	Steam inlet bearing housing	1
17.	KE00151	Worm gear	1
18.	FA19186	Worm gear allen screw	1
19.	KE50315	Worm	1
20.	KE50324	Console cover	1
21.	KE51731	Bearing, tilt shaft	1
22.	KE51891	Washer, 1 1/2" O.D. x 13/16" I.D. x .037" W.	
23.	SE00034	Bearing assembly	
24.	FA20029	Nut, hex, 5/16-24	
25.	FA10623	Bolt, 5/16-24 x 1 1/2"	
26.		Not available	
27.	KE52192	Washer, thrust bearing	2
28.	KE52191	Bearing, thrust	1
29.	KE52193	Spacer, thrust bearing	1

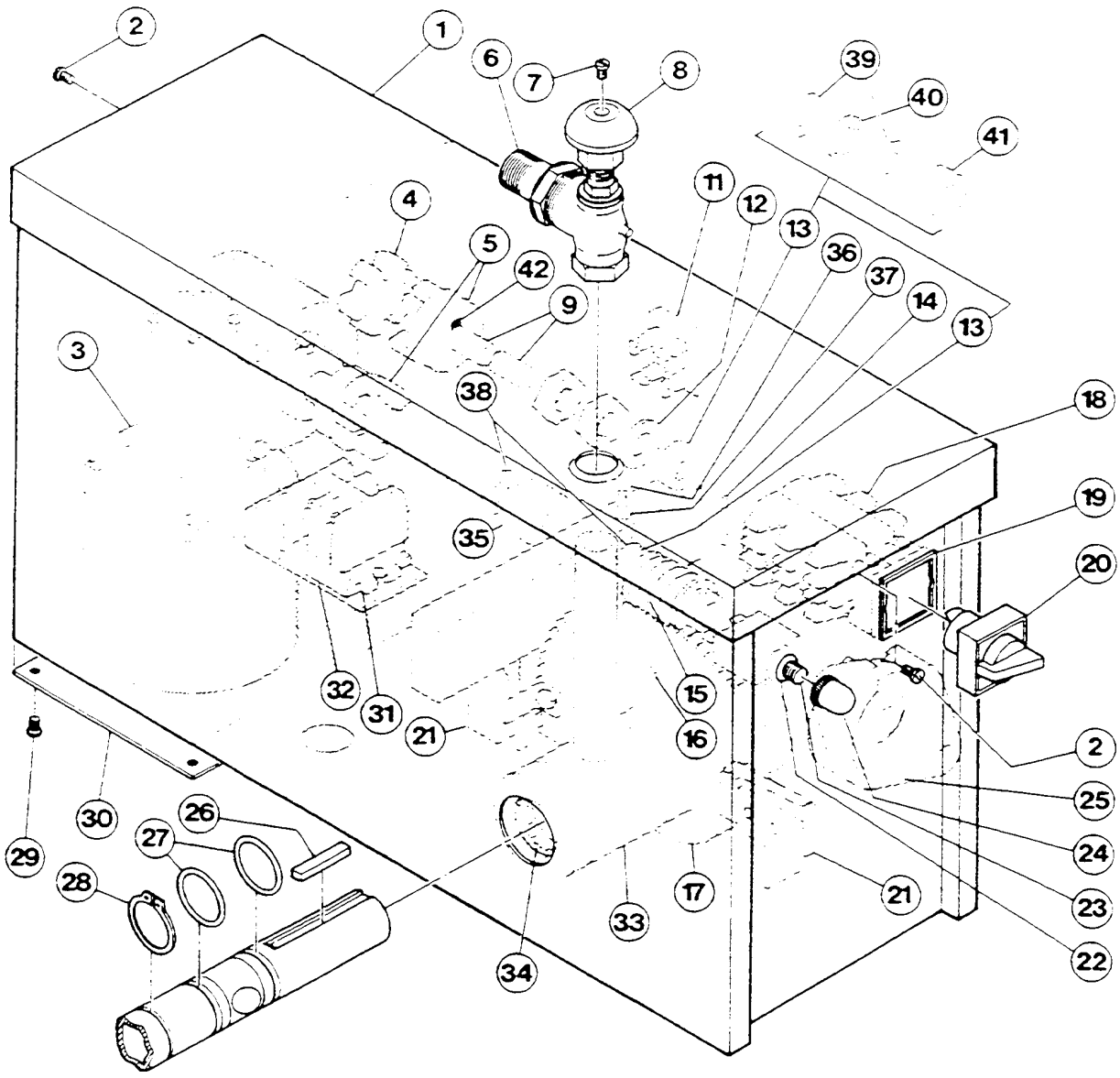
CONTROL HOUSING



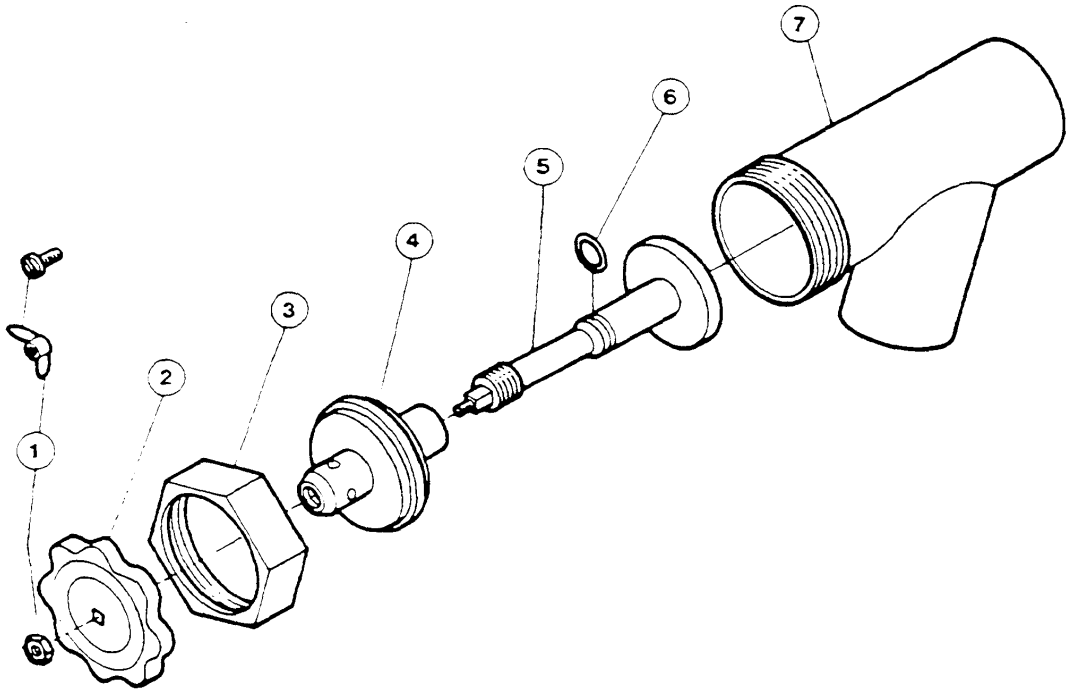
PARTS LIST - POWER TILT CONTROL HOUSING (OPTIONAL)

ITEM NO.	PART NO.	DESCRIPTION	QTY.
1.	KE51012	Gear box lid	1
2	FA11134	Screw, 10-24 x 3/8" S.S.	1
3.	KE50577	Motor, 1/15 h.p., 25-40 gallon	1
	KE52832	Motor, 1/8 h.p., 60 gallon & up	
4.	KE50583	Buna-N insert	1
5.	KE50582	Coupling	2
6.	KE00350	3/4" Brass steam inlet valve	1
7.	FA11501	Screw	1
8.	SE00028	Steam inlet knob ass'y. (Item no. 7 included)	
9.	KE50441	Tilt shaft	1
10.	FA95008	Locknut, 3/4-16	2
11.	KE50581	Bridge rectifier	1
12.	FA30088	Washer, 1 1/2" O.D. x 13/16" I.D. x .125 W.	1
13.	SE00036	Bearing assembly	2
14.	FA95005	Tension pin	1
15.	KE50315	Worm	1
16.	FA19186	Allen screw, worm gear	1
17.	KE00150	Worm gear	1
18.	KE51011	Contact section	6
19.	KE51009	Square spacer plate	1
20.	KE51010	Square actuator	1
21.	KE51007	Micro switch	2
22.	FA00012	"0" ring, circuit breaker	1
23.	KE50579	Circuit breaker, 1 Amp	1
24.	KE50580	Water resistant boot	1
25.	KE51731	Bearing, tilt shaft	1
26.	FA95012	Worm gear key	1
27.	FA00218	"0" ring	4
28.	FA95007	Retaining ring	1
29.	FA11081	Screw, 8-32 x 1/2" S.S.	4
30.	KE51223	Bottom cover	1
31.	KE50376	Terminal block end section (Large, white)	1
	SK50054	Terminal block end section (Small, black)	1
32.	KE50377	Terminal block end section (Large, white)	3
	SK50055	Terminal block end section (Small, black)	3
33.	KE00164	Trunnion bearing housing	1
34.	KE51711	Roller bearing, trunnion	2
35.	SE00034	Bearing assembly	1
36.	FA10623	Bolt, 5/16-24 x 1 1/2"	1
37.	FA20229	Nut, hex, 5/16-24	1
38.	KE51891	Washer, 1 1/2" O.D. x 13/16" I.D. x .037" W.	2
39.	KE52192	Washer, thrust bearing	4
40.	KE52191	Bearing, thrust	2
41.	KE52193	Spacer, thrust bearing	2
42.	FA95037	Key, 3/16"x 3/16"x 3/4"	1

POWER TILT CONTROL HOUSING (OPTIONAL)

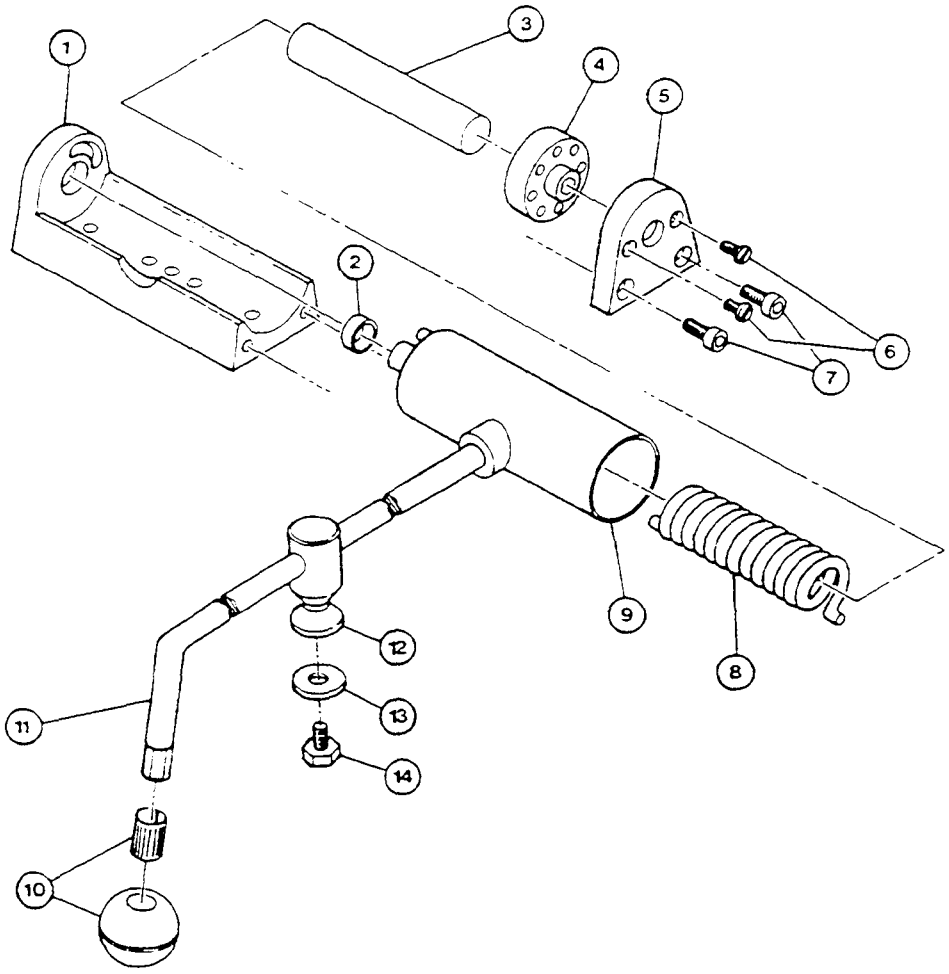


PARTS LIST - 2" TANGENT DRAW-OFF VALVE



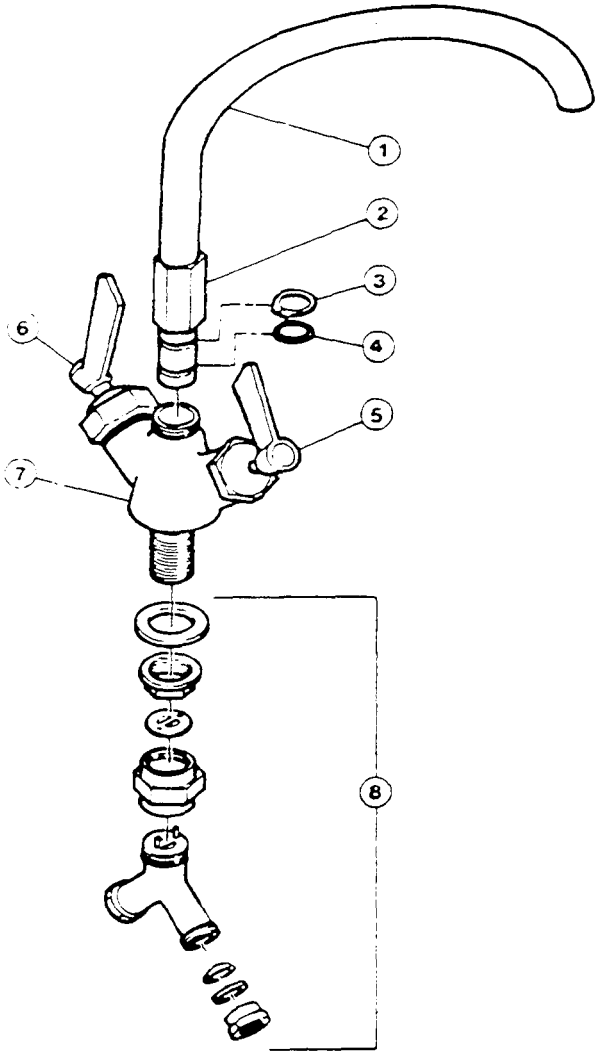
ITEM NO.	PART NO.	DESCRIPTION	QTY.
1. to 7.	KE50972-B	Draw-off assembly	1
1.	FA21008	Hex nut	1
	FA95049	Wing nut	
2.	KE527551	Knob	1
3.	KE52754	Hex nut	1
4.	KE52753	Retainer	1
5.	KE52752	Piston	1
6.	FA00111	"O" Ring	1
7.	KE52751	Valve body	1

PARTS LIST - HINGE ASSEMBLY



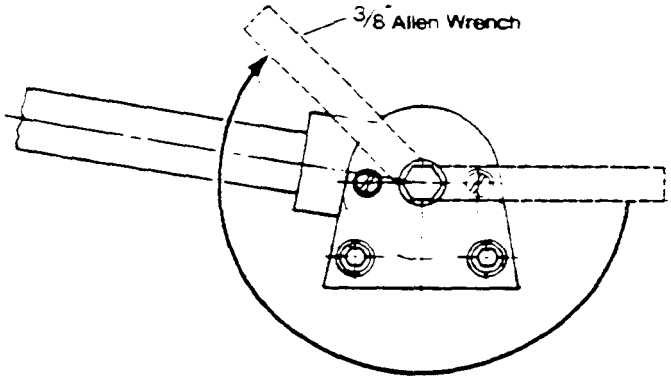
ITEM NO.	PART NO.	DESCRIPTION	QTY.
1.-9.	SE00057	Hinge assembly (40 gal. and under)	1
	SE00058	Hinge assembly (60 gal. and over)	1
1.	KE51218	Body, spring assist hinge	1
2.	KE50824	Hinge bearing	1
3.	KE50823	Pin (hinge)	1
4.	KE50820	Insert, brass adjustment	1
5.	KE50819	End piece	1
6.	FA11507	Screws, adjustment	2
7.	FA11284	Bolts, end block	2
8.	KE50122	Spring (40 gal. and under)	1
	KE50121	Spring (60 gal. and over)	1
9.	KE50821	Cylinder	1
10.	KE53478	Knob, ball type	1
11.		Cover handle (specify model)	1
12.	KE00095	Lid holder	1
13.	FA30500	Washer, lid holder	1
14.	FA11223	Bolt, lid holder	1

PARTS LIST - FAUCET



ITEM NO.	PART NO.	DESCRIPTION	QTY.
1		3/4" Spout	1
	KE50833	for KS S-LA	
	KE50828	for KS20SA, KS30SA KS40SA	
	KE50829	for KS60SA	
2	KE51404	Spout nut, short (used on spout KE50833)	1
	KE51736	Spout nut, tall (used on spouts KE50828 & KE50829)	1
3	FA95022	Retaining ring	1
4	FA00016	"O"ring	1
5	SE50021	Cold water stem assemby	1
6	SE50020	Hot water stem assembly	1
7	KE51403	Double pantry control valve (c/w item no. 5,6,8)	1
8	SE50022	Yoke connection kit	1

ALL KETTLES AND SKILLETS HINGE ADJUSTMENT INSTRUCTIONS



1. Insert 3/8" Allen wrench.
2. Turn clockwise to relieve tension on spring.
3. While tension is released remove one of the two slotted screws.
4. To prevent Allen wrench from springing back abruptly while the second slotted screw is removed, insert a pin (approximately 1/8") in the hole where the first slotted screw was removed from.
5. Remove second slotted screw.
6. While holding Allen wrench remove pin.
7. Turn Allen wrench clockwise to tighten or counter-clockwise to loosen tension to produce desired effect
8. Re-insert pin in one of the two holes.
9. Tighten **one** slotted screw in the other hole (it may be necessary to turn Allen wrench slightly to align holes.)
10. Remove pin and repeat step number 9 for other slotted screw.

SERVICING GUIDE

This section contains information intended for use by Authorized Service Personnel only.

A/ **PROBLEM :** Kettle heats too slowly or does not come to a boil.

Probable Cause	Remedy
1. Inadequate steam flow.	Check for correct steam using chart below. If kettle is connected to a steamer and powered by a generator the units should be operated sequentially (kettle boiling first, then start steamer).
2. Steam trap not operating properly.	The trap should open periodically to dump, condensate, then dose- If it does not open or close it should be cleaned or replaced.
3. Food batches are not always the same.	When checking make certain that the original state (ie. fresh or frozen) and quantity of food product is the same.

B/ **PROBLEM :** The trunnion housing leaks steam.

Probable Cause	Remedy
1. Trunnion "O" rings are worn.	Replace "O" rings.

C/ **PROBLEM :** Steam trap makes a "banging" noise when steam applied to cold kettle.

Probable Cause	Remedy
1. Kettle condensate has not been drained.	On all tilting trileg and pedestal kettles the condensate should be drained from the cold kettle. This is done before steam is applied using the drain petcock valve on the bottom of the kettle.

STEAM FLOW RATING OF STEAM GENERATORS

GAS INPUT BTU/HOUR	STEAM OUTPUT LBS./HOUR	BOILER H.P.
100,000	60	1.7
160,000	95	2.8
200,000	125	3.6
250,000	150	4.4
300,000	180	5-2
ELECTRIC KW INPUT		
18 KW	60	1.7
24 KW	70	2.0
27 KW	90	2.6
36 KW	120	3.5
48 KW	150	43

STEAM FLOW RATE REQUIREMENTS FOR KETTLES

Capacity Gal/Lit.	Fast Cooking	Medium Speed Cooking	Stock Kettle
5/17	11	9	6
10/42	22	18	11
25/95	55	44	28
40/151	88	70	44
60/227	132	105	66

Note: Above shows Ibs. per hour with 10-15 psig steam at the kettle. The use of higher steam pressures (20-25 psig) will reduce heat-up time 5 to 20 % .